

REMARKS

In the Office Action, Claim 14 has been rejected under 35 U.S.C. § 112, second paragraph; claims 1-4, 7, 8, 11-14, 19, 20 and 24 are rejected under 35 U.S.C. § 102; and claims 5, 6, and 10 are rejected under 35 U.S.C. § 103. In response, claims 10-14 have been amended; and claim 26 has been newly added. Applicants respectfully submit that the rejections have been overcome or are improper in view of the amendments and for the reasons set forth below.

In the Office Action, Claim 14 is rejected under 35 U.S.C. § 112, second paragraph. The patent office alleges that Claim 14 does not further limit Claim 8. As previously discussed, Claim 14 has been amended. Applicants note that the amendment to Claim 14 was made for clarification purposes and thus should not be deemed as narrowing and/or disclaiming any claimed subject matter in view of same. In this regard, Claim 14 has been amended to correct its dependency to depend from claim 9 and thus claim 14 should be withdrawn as claim 9 has been previously withdrawn. Therefore, Applicants believe that the presently pending claims fully comply with 35 U.S.C. § 112.

Accordingly, Applicants respectfully submit that this rejection should be withdrawn.

In the Office Action, Claims 1-4, 7, 8, 11-14, 19, 20 and 24 are rejected under 35 U.S.C. § 102 as anticipated by U.S. Patent No. 5,057,328 ("*Cherukuri*"). The Patent Office essentially asserts that *Cherukuri* discloses each of the features of the pending claims at issue. Applicants believe that this rejection is improper.

At the outset, claims 11-14 have been amended to correct for their dependency to depend from claim 9 and thus should be withdrawn at this stage as claim 9 has been previously withdrawn. Therefore, the anticipation rejection with respect to claims 11-14 should be rendered moot.

Of the pending claims at issue, Claims 1 and 19 are the sole independent claims. Claim 1 recites a chewing gum that includes a water-soluble portion, a water-insoluble portion, and an encapsulated acid mixture wherein the mixture includes at least two acidulants encapsulated in polyvinylacetate. Claim 19 recites a method of producing an edible product that includes an

acidulant. The method includes encapsulating acidulants that include at least fumaric and malic acid in a hydrophobic polymer to produce an encapsulated acidulant.

By encapsulating the acidulants, Applicants have found that one is able to extend or delay the release of acids. Further the encapsulated acidulants are in a form that is suitable for incorporation in food product such as confectionery products including chewing gum. The encapsulated acidulants produced by the present invention reduced degradation of the encapsulated material during extrusion, thus resulting in longer lasting tartness and/or longer lasting flavor in food products containing same. See, Specification, p. 4, line 30 to p. 5, line 5.

It has been found that the coating of a hydrophobic polymer, such as polyvinyl acetate, provides a material that will not degrade during processing. Moreover, when added to a confectionery product, such as chewing gum, the encapsulated acid mixture provides a longer lasting tartness during duration. Because the hydrophobic polymer, such as polyvinyl acetate, is substantially water insoluble, it protects the food acid from hydrolytic degradation and/or neutralization. Yet, when chewed, the acid core material can slowly be released from the polyvinyl acetate or other hydrophobic polymer into the oral cavity. See, Specification, p. 5, lines 7-13.

In contrast, Applicants believe that *Cherukuri* is deficient with respect to the claimed invention. At the outset, the primary focus of *Cherukuri* relates to the encapsulation of a food acid in a matrix that includes an emulsifier in addition to polyvinyl acetate. See, *Cherukuri*, Abstract. Indeed, *Cherukuri* further discloses that the combination of polyvinyl acetate and emulsifiers produces coatings which form excellent films on the food acids. In this regard, *Cherukuri* alleges that glyceryl monostearate is the most preferred emulsifier because it has been found to have the unexpected property of inhibiting the hydrolysis of polyvinyl acetate to acidic acid and polyvinyl alcohol. See *Cherukuri*, column 6, lines 8-20.

This clearly contrasts the claimed invention. In Claim 1 the chewing gum includes in part, an encapsulated acid mixture that includes at least two acidulants encapsulated in polyvinyl acetate. The method in Claim 19 requires encapsulation of at least fumaric and malic acid in a hydrophobic polymer to produce the encapsulated acidulant. As disclosed in the specification,

for example, on page 5, the encapsulated composite acid matrix of the present invention is generally prepared by blending ground polyvinyl acetate and a powder composite acid and then adding them together into an extruder at a specified temperature and then after extrusion the resulting mixture is allowed to cool wherein the cooled solid mixture can then be milled or grounded to a powder or granulated form that includes the composite acid encapsulated with the polyvinyl acetate.

Further, Applicants have conducted a number of tests to demonstrate the desirable effects of the claimed invention. On page 13 of the specification, for example, an encapsulated acid mixture was made by blending 25% of a composite acid with 75% of a medium molecular weight polyvinyl acetate according to an embodiment of the present invention. The encapsulated acid mixture was then added to a bubble gum composition and a variety of tests were conducted that demonstrated the beneficial effects of the claimed invention. See, Specification, pages 13-15. Thus, Applicants believe that the encapsulation features of the claimed invention are clearly different than what *Cherukuri* allegedly discloses.

Based on at least these noted differences, Applicants believe that the cited art fails to disclose or arguably suggest the claimed invention. Therefore, Applicants believe that *Cherukuri* fails to anticipate the claimed invention.

Accordingly, Applicants respectfully submit that the anticipation rejection should be withdrawn.

In the Office Action, Claims 5, 6 and 10 are rejected under 35 U.S.C. § 103 in view of *Cherukuri*. The Patent Office essentially asserts that *Cherukuri*, on its own, discloses or suggests the features of the claimed invention. Applicants believe that this rejection is improper and thus should be withdrawn.

Of the pending claims at issue, Claims 5, 6 and 10 depend from Claim 1 either directly or indirectly. Claim 5 recites that the mixture of acidulants of Claim 1 includes, by total weight percent, approximately 25% to about 65% fumaric acid; approximately 10% to about 50% malic acid; and approximately 0% to about 25% tartaric acid. Claim 6 further recites that the mixture of acidulants includes by total weight percent approximately 50% malic acid; approximately

41% fumaric acids; and approximately 9% tartaric acid. As previously discussed, Claim 10 has been amended to correct for dependency and thus should be withdrawn as it now, as amended, depends from independent Claim 9 which had been previously withdrawn. Thus, the rejection with respect to Claim 10 has been rendered moot and thus should be withdrawn.

At the outset, the *Cherukuri* reference is deficient with respect to the subject matter as defined in Claims 5 and 6 for substantially the same reasons as discussed above. Clearly, the encapsulation features as defined in independent Claim 1 are different than what *Cherukuri* allegedly discloses. Further, *Cherukuri* is clearly deficient with respect to the specific acidulant compositional features as required by Claims 5 and 6. Indeed, the Patent Office merely concludes that an optimal amount of each acidulant would be routine experimentation by one skilled in the art. What the Patent Office has done is to apply hindsight reasoning as a justification to modify *Cherukuri* to arrive at the claimed invention. Of course, this is clearly improper.

In view of same, Applicants do not believe that *Cherukuri* discloses or suggests the claimed invention. Therefore, Applicants believe that *Cherukuri* fails to render obvious the claimed invention. Accordingly, Applicants respectfully request that this rejection be withdrawn.

As previously discussed, Applicants have added new claim 26 which depends from claim 1. Claim 26 further recites that the mixture of acidulants includes a dry composite acid. In this regard, the dry composite acid is not merely a blend of dry acids but rather the acidulants (i.e., tartaric acid and malic acid) are pretreated to form the dry composite acid prior to encapsulation thereof as fully supported in the specification, such as in Example No. 1 on pages 11 and 12. Thus, Applicants believe that no new matter has been added thereby.

Nowhere does the cited art disclose or suggest the chewing gum with encapsulation features as required by claim 1 as discussed above, let alone in combination with the dry composite acid features as further defined in claim 26. Indeed, Applicants have demonstrated that the encapsulation of a dry composite acid as claimed gave longer lasting tartness, such as after four minutes of chewing and lasting up to 12 minutes, to a chewing gum that incorporated

same. See, Specification, Gum Examples, pages 13-15. Therefore, Applicants believe that the subject matter as defined in claim 26 is clearly patentable over the cited art.

For the foregoing reasons, Applicants respectfully request reconsideration of their patent application and earnestly solicit an early allowance of same.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY 

Robert M. Barrett

Reg. No. 30,142

P.O. Box 1135

Chicago, Illinois 60690-1135

Phone: (312) 807-4204

Dated: August 27, 2003